MP20

T W O C H A N N E L M I C R O P H O N E

P R E - A M P L I F I E R

USERS MANUAL

Version 1.1

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1 OVERVIEW

1.1 INTRODUCTION

Thank you for purchasing the PreSonus MP20 Two Channel Microphone / Instrument Preamplifier with Stereo Bus. This pre-amp was designed using state of the art components to deliver crystal clear audio for an infinite period of time. We believe the MP20 to be an exceptional sounding unit and an exceptional value. Feel free to contact us at 1-800-750-0323 anytime for any reason whatsoever. We value your suggestions and your comments. PreSonus Audio Electronics is committed to constant product improvement and feel the best way to accomplish this task is by listening to the *experts* on our gear, our valued customers. We appreciate the support you have shown us through the purchase of our products.

Please pay close attention to how you connect your MP20 to your system. Improper grounding is the most common cause of noise problems found in studio or live sound systems. We urge you to scan this manual before hooking up your MP20 to become familiar with its features and various applications.

Good luck and enjoy your MP20!

1.2 FEATURES

The following is a summary of your MP20's features:

- **FET, Class A Discrete Input Buffers.** Each channel of your MP20 contains a Class A discrete input buffer followed by a dual servo gain stage. This provides ultra low noise and wide gain control. This allows the MP20 user to boost desirable signal without increasing unwanted background noise (**NO capacitors!**)

- **48 Volt Phantom Power.** Each channel of the MP20 has 48V Phantom power available. When the Phantom power switch is engaged, power is supplied at a constant rate whether one or both channels are utilized. This assures optimum performance of your condenser microphone(s) and that it will be free of distortion associated with insufficient power.

- **Polarity Reverse.** A phase reverse switch is provided on each channel. This switch enables the user to invert the phase of a microphone when phase cancellation is noted. The phase reverse switch allows the operator to avoid phase cancellation when identical microphones are used in close proximity to one another. The phase reverse switch also can compensate for different XLR connector hook-ups where pin connections have been inverted.

- **20 dB Pad.** A 20 dB pad is available on each channel for reducing the in-coming signal level. This pad provides a more manageable signal from high output devices giving the operator greater control over the in-coming signal and a much reduced chance of over-driving the input and thereby avoiding distortion.

- **+28 dB Headroom.** The MP20 has +28 dBu of

headroom on each channel. This feature gives you a very wide dynamic range and excellent transient response characteristics.

? **Rumble Filter.** A Rumble filter is provided on each channel for eliminating low frequency noise. This lets you greatly reduce background noise such as air conditioners or wind noise with the flick of a switch without effecting the desired frequencies.

? **Microphone or Instrument Input.** Each channel of the MP20 has a separate XLR microphone input on the rear of the unit and a female 1/4" instrument input jack located on the front panel.

? **High Quality Transformer with IDSS Control.** The MP20 offers a high quality transformer on each channel. These feature an IDSS control (this control adjusts the drain current on the input FET amplifier altering the even harmonic levels of the signal being passed) with an adjustment range of 0% to 100%. The 0% position passes a pure signal. As the control is rotated to the 100% position, the signal's even harmonic series is boosted giving the signal "warmth" very much like a vacuum tube or similar to the sound of analog tape saturation. This remarkable effect gives you the sound of a tube without the headache of uneven performance often encountered with vacuum tube devices (no tube to pick-up RF or to age and become "microphonic")

? **Mix Bus**. The MP20 has a stereo summing bus for combining the input signals assigned to the bus using the L/R function switch on the front panel of the MP20. A pan knob allows the placement of the selected signal anywhere in the stereo array of the stereo summing bus out-going signal (i.e.- left; left-center; center; right-center or

right).

? **High Gain Headphone Jack.** Inserting stereo headphones into the jack on the front panel of the MP20 enables the user to monitor the signals assigned to the Stereo bus. Ample power has been provided to allow the operator to hear the processed signals in loud ambient noise environments such as concert halls or clubs or in control rooms monitoring at high volume levels.

2 CONTROLS & CONNECTIONS

2.1 FRONT PANEL BASIC LAYOUT

Notice that the front panel is divided into two identical Preamplifier sections - Channel One and Channel Two - plus a Master section.

Channel One and Channel Two are the two microphone preamplifier channels of the MP20.

Both preamp channels contain:

? 80 Hz Filter

? L/R Assign

? Phantom Power Switch

? Phase Reverse Switch

? -20db Pad

? IDSS Control

? Gain Control

? Pan

Master Channel contains:

? Stereo Output Control

? Headphone Level Control

2.2 PREAMPLIFIER SECTION

L/R Assign button assigns the signal coming through the channel to the Stereo Summing Bus output.

Pan control provides constant power panning to the Stereo Summing Bus.

IDSS Control selects the amount of boost (0% to 100%) applied to the even harmonic series of the signal being amplified by a channel of the MP20. The effect of manipulating the harmonic distortion is of increasing or decreasing the apparent "warmth" of the signal. This capability is derived from the transformer and its dual servo gain stage. This proprietary feature of PreSonus products was introduced in the PreSonus M80 Eight Channel Microphone Pre-Amplifier. Experiment with the IDSS control and see what type of sounds you can get from your present microphone selection.

Phantom Power is available to each channel input of the **MP20.** The **48 volts** is supplied by way of the XLR connector for condenser mics and any

other devices requiring continuous power through the XLR input. This power is supplied at a constant level allowing use of both inputs simultaneously for condenser mics without any degradation of audio quality.

PIN 1	GND
PIN 2	+48v
PIN 3	+48v

XLR connector wiring for **Phantom Power**

Phase Reverse Switch allows the user to invert the polarity of the XLR connector by switching pins two and three. The inversion of the pins of the XLR connector may be necessary to alter the audio phase of two like microphones to compensate for phase cancellation. It may be required that the wiring of a cable's XLR connector be switched to successfully utilize Phantom power.

-20 dB Pad provides -20 decibels of attenuation with the push of a button. This is a very useful feature for rapidly reducing the level coming into the MP20 and thus preventing the input signal from over-modulating (distorting) the input. This may occur due to high output level from a microphone or line device. Padding the input serves to provide increased "headroom" for the operator.

80 Hz Filter. The MP20 has an eighty-hertz filter that is activated by engaging the switch on the front panel. This filter (often referred to as a *RUMBLE* filter) is useful for eliminating extraneous low-end information from the signal being amplified. Frequencies from eighty hertz and below are cut from the incoming signal. This feature is useful in eliminating low frequency noise such as air-conditioning rumble or for reducing the sound of footsteps or other types of vibrations from being transmitted through the microphone stand into the microphone.

Gain. This control provides 60dB of gain. The amplifier has inherent gain of

12dB thus delivering a total gain possibility of 72dB.

INSTRUMENT. This 1/4 inch input is provided so the MP20 can be used to boost low level instrument signals such as those typically encountered with electric bass and guitar. This feature is commonly referred to as a DI. This input allows pick-ups of electric and acoustic instruments to resonate at full frequency. Care must be observed when using this input to accept signals from instrument pre-amplifiers to avoid distortion.

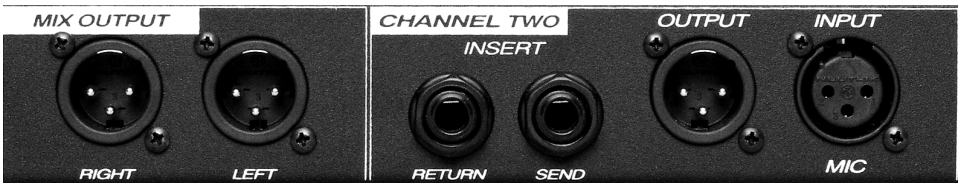
2.3 MASTER CHANNEL

LEVEL. This control adjusts the output level of the Stereo Summing Bus. Channels are assigned to the bus via the L/R assign switch on each of the two pre-amp channels of the MP20.

PHONES. A headphone volume control (Phones**)** is located to the left of the 1/4-inch stereo headphone output jack on the front panel. The signal monitored by the headphones is the same signal provided by the Stereo Summing Bus to the Mix Output XLR's on the rear panel of the MP20.

POWER. A lighted push button is located on the front panel for turning the MP20 On and Off.

2.4 BACK PANEL BASIC LAYOUT



PIN 1	GND	
PIN 2	High	(+)
PIN 3	Low	(-)

Cable Wiring Diagram for Input and Output XLR

The **Output XLR Connector** is servo balanced and operates at +4dBu.

The **Return / Line In** connector of the MP20 is provided for use in conjunction with audio process devices such as compressor/limiters and as a Line In for recording media such as tape machines, hard disc recorders, or DAT's. When a device is connected to this jack, the Neutrik? Combo jack is disconnected.

TIP	High	(+)
RING	Low	(-)
SLEEVE	GND	

Cable Wiring Diagram for Balanced Send / Return Jacks

The **Send Jack** on the back panel of the MP20 routes the signal being processed by the channel to outboard devices or to recording media.

MIX OUTPUT. A pair of XLR connectors is provided for the **Left** and **Right Outputs** of the stereo summing bus. Signals are assigned to these outputs using the L/R Assign switches on the individual channels.

2.7 POWER SUPPLY

The **Power Jack** on your MP20 accepts a standard IEC cord like those found on most computers and professional recorders.

Your MP20 has been designed to operate at the proper voltage for the country where you purchased your unit. Make sure that the power requirement of your unit matches the voltage of the country where the unit will be used. (USA = 115V)

3 OPERATION

3.1 DYNAMIC MICROPHONES

Dynamic microphones are characterized by lower output levels. Hence, more gain is needed to amplify a dynamic microphone to operating level. Occasionally it is necessary to add the –20dB pad to the microphone to avoid distortion (e.g. when recording percussion). Do not use phantom power when using dynamic microphones.

3.2 PHANTOM POWERED MICROPHONES

Phantom powered microphones such as condenser and some ribbon microphones require external power to pre-amplify the microphone acoustic pickup. These microphones typically have much higher output than dynamic microphones. Hence the –20dB pad is almost always necessary when close micing to avoid clipping the amplifier.

3.3 INSTRUMENT INPUT

The instrument input is designed to handle ¼" plugs from instruments such as guitars and basses. This instrument input is an ultra high impedance amplifier designed to allow the full audio potential of an acoustic or electric instrument pickup to be realized. Care should be taken not to overdrive the input with instrument preamplifiers.

3.4 INSERTING COMPRESSORS, EQ'S, ETC.

Each channel of the MP20 features a send jack and a return jack. This feature allows the use of external processors such as compression and equalization devices. Simply connect the send jack, balanced or unbalanced to the input of the external processor. Then connect the MP20's return jack to the output of the external processor. The signal is now routed out of the MP20, into the external processor, then back into the MP20. The final, processed signal will be available at the MP20 channel output XLR connector or the Mix Bus output if assigned to the mix bus.

3.5 USING RETURN AS LINE IN

The return jacks on each channel can be used to insert external audio devices such as tape machine outputs, DAT machine outputs, etc. This then makes the audio device available to the mix bus for mixing in with microphones or instruments.

4 TECHNICAL

MP20 Technical Specifications:

Number of Channels	Two
Dynamic Range	>120dB
Noise Floor @ Bus	-90.2dBu
Noise Floor @ Main Output	-88.4dBu
Noise Floor @ Channel Output, +24dB Gain	-94.2dBu
Headroom	+28dBu
Frequency Response +/- 0.5dB	10Hz to 60kHz
Crosstalk	>82dB @ 10kHz
Channel Gain, Microphone Input	+24dB to +60dB
THD + Noise, (no idss)	0.0024%
THD + Noise, (max idss)	0.035%
Input Impedance, Mic Input	1.3k Ohms
Input Impedance, Instrument Input	1Meg Ohms
Output Impedance	51 Ohms
THD + Noise	<0.02%
Bus Master Output Control	-72dBu to +10dBu
Metering	Full scale
Send Output Impedance	51 Ohms
Return Input Impedance	10k Ohms
Internal Operation Level	+4dBu = 0dB
Input Connectors	XLR & 1/4", Tip Sleeve
Output Connectors	XLR
Send Connector	1/4", Tip Ring Sleeve
Return Connector	1/4", Tip Ring Sleeve
Power Supply	Internal, Toroidal Transformer, Linear Supply
Power Requirements	100VAC to 120VAC, or 200VAC to 240VAC
Main Connection	EIC receptacle
Size	1U Rack 19" X 1.75" X 7"
Weight	7 lbs.

As a commitment to constant improvement, PreSonus, Inc. reserves the right to change any specification stated herein at any time in the future without notification.